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# MOBILITY OF THE FACTORS OF PRODUCTION AS AFFECTING VARIATION IN THEIR PROPORTIONAL RELATION TO EACH OTHER IN FARM ORGANIZATION

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## I. INTRODUCTION

The matter of the proper combination of the factors of production, which is the most important as well as by far the most difficult problem in farm organization, has prominently engaged the attention of those who have occupied themselves with the extension of the general principles of economics into the field of agriculture.<sup>1</sup> These writers have given almost the whole of their attention, however, to the problem of the ideal combination of the factors of production, a priori considered, and have devoted little or no attention to the circumstances which determine whether one or more of the factors can be shifted in quantitative relation to the other factors so as to secure the correction of an existing disproportion or a nearer approach to the ideal combination. The question of the *ideal* combination is a highly important one. But what we ordinarily face is not the opportunity to realize the ideal combination of the factors of production *de novo* in a virgin agricultural area where the factors are wholly free to our moulding. Rather it is a question of shifting or modifying the existing farm organization in the search for a more nearly perfect combination. Doubtless with reference to virgin areas not yet organized into farms there is the opportunity of trying out the principles of an ideal combination with a free hand. Thus there are at present land colonization of land exploitation concerns that are advertising "standardized farms" that have been organized from the uncombined factors of production and put into actual operation for the prospective colonist or purchaser. Also, in a number of countries, the state has likewise prepared farms for settlement, and in some cases set them going for the prospective lessee or purchasing colonist, either from

<sup>1</sup> Taylor, *Agricultural Economics*, 1919, chaps. xii-xiv, and Carver, *Rural Economics*, 1911, pp. 216-22.

the unoccupied public domain or from large private estates or holdings that have been purchased or otherwise taken over. So far, however, relatively little has been done in this direction either by private concerns or by state bureaus or boards or departments.<sup>1</sup> When a new agricultural area is occupied and brought under utilization it is common to carry into this new area, for each branch of farming, those forms of organization to which those occupying the new area have been accustomed in older agricultural regions or which have been practiced by others from whom they have been copied. The overwhelming proportion of the occupied agricultural area has thus been settled and organized into new farms, not on the basis of any very well-thought-out plan for an economical combination of the factors of production but rather through an imperfect adaptation of forms of organization already in use—forms that were, in all probability, themselves far from ideal. It remains to be seen to what extent the future will bring forth a different method.

But even granted that the ideal combination could be calculated and realized there would still be occasion for inquiring as to the various ways in which mobility with reference to the different factors of production could be secured so as to make possible a shift in their quantitative relation to each other. For any ideal combination of the factors would, under the influence of various changing conditions, soon cease to be ideal and would require to be modified accordingly.

Now in actual farming efforts more or less conscious are constantly being made to shift the combination of the factors of production with a view to securing a more nearly perfect combination. Doubtless these attempts are often crude and unintelligent. Yet through a selective process that has run its course over a long period of time and has involved countless experiments by farm operations in this and other countries, certain methods have been worked out that do, in a measure, afford the opportunity to vary the combination of the factors in the direction of greater efficiency. The extent to which the reorganization can be carried evidently is limited by the extent to which opportunity can be found to reconstitute any

<sup>1</sup> *Report of the Commission on Land Colonization and Rural Credits of the State of California*, Nov. 29, 1916, pp. 25-28.

factor of production—that is, upon the mobility of any factor, especially in the matter of its quantitative relation to the other factors. It is the purpose of this paper to call attention to the various ways in which this mobility is, or may be, secured. In attempting this, attention is called to some very familiar farm practices. But, so far as the writer is aware, no formal analysis of these practices has been made, with the object of showing how, in these ways, shifting of the factors of production in farm organization, or other modification of the farm organization, is facilitated.

In this discussion we shall recognize four separate factors of production—land, labor, capital, and management—and shall proceed to enumerate, and in part to examine in order the various ways in which “mobility” may be secured with reference to each factor so as to permit a changed combination with relation to the other factors. Of “mobility,” again, there may be said to be three phases: (1) that relating to physical removal or transfer from place to place, (2) that relating to the shift of any factor from one branch of farming to another, and (3) that relating to increase or decrease in quantity, for any factor. For the purposes of this discussion the last of these three phases is more fundamental; and the former two are chiefly important because in an indirect way they often facilitate, in actual farm practice, a change in the quantitative relation of the four factors.

## II. THE MOBILITY OF LAND AS A FACTOR IN FARM ORGANIZATION

Land has, of course, very little mobility in the sense of capacity for physical removal. The *soil* may be removed from place to place. But this is practicable, at least at present, only to a very restricted extent and has no particular importance outside of underglass culture. Yet while the total natural land area cannot be readily changed by human agency, or transferred from place to place in any considerable degree, the area of land combined with the other factors of production *in a given farm enterprise* may be greatly varied. As the conditions of agricultural production continue to change from time to time there are constantly at work forces tending to reduce or to increase the land factor, in a given

farm enterprise, in its relation to one or more of the other factors—that is, in general, to reduce or increase the size of farms. But what is important in the present connection is not the fact of increase or decrease in the land factor but rather the various methods by which increase or decrease in that factor is facilitated. To a consideration of these various methods we may therefore now turn.

1. *Simple reorganization of the individual farms in large estates.*—Where a number of farms are held together in a single estate the problem of adjustment of the size of the individual farm to the other factors is easiest. Here mobility of land in the quantitative sense is at the maximum. Here the organization of the individual farm is disentangled from the hard-and-fast limitations that individual ownership of separate, individual farms imposes. It is a relatively easy matter, on such an estate, to combine farms or parts of farms so as to increase the area of a producing unit; or, vice versa, to break up the administrative units into smaller areas. Whatever social disadvantages large estates involve, this facility for reorganization of the land factor that is offered on such estates is a matter of advantage not without considerable value. For similar reasons the co-operative management and operation of land on a large scale likewise may do away with the rigidity in the delimitation of individual farms that characterizes individual ownership and management and may thus facilitate the adjustment of the amount of land operated in a given unit to the most economical relation to the other factors. Thus proposals have been made in this country for the throwing together of the land lying in a given area of similar soil content and of other similar agricultural characteristics, and the handling of the whole area in a broadly co-operative way for the growing of those products for which it is best adapted. Still further, it may be noted that whatever be the disadvantages of a socialistic organization of society, so far as agriculture is concerned there would be the advantage of greater mobility in the breaking up and in the combining of areas of land in the effort to achieve the best proportion between land and the other factors of agricultural production, in the operating unit, under any given set of circumstances.

2. *Ordinary sale and purchase.*—Within the limits that sentiment or other non-economic forces may set, the owning farm operator may dispose of his farm entire, in case its size is out of line with the other factors which he commands, and purchase another of suitable area. He may thus be able, indirectly, to vary the land factor in his enterprise in its relation to the other factors, as may also the farm operator to whom he has sold. But mobility attaches in this case rather to the other factors than land, for it is the capacity for removal on their part that makes the shift possible. But by selling a part of his land, or by purchasing additional land, he may effect a direct change in the relation of the land factor to the other factors; and since the farm owner with whom he deals may often be in just the opposite circumstances such a consummation may frequently result in an improved adjustment of the land factor to the other factors for both parties.

3. *The settlement of estates.*—A favorable opportunity for the readjustment of the land factor in the farm enterprise may come when an estate is settled up at the death of the owner, by affording the opportunity of combining lots of land that were previously too small for profitable operation separately or of breaking up the estate into separate farms of a size better adapted to individual management. Often, however, the division of an estate among the heirs will result, for the time at least, not in a better, but in a worse adjustment of the land factor to the other factors. For the splitting up or sharing between the heirs may be largely without regard to the ideal size of operating unit.

4. *The renting of additional land by owners.*—The renting of additional land by owners not only increases the area of land under the control by these owners but also diminishes the amount of land operated by the owners from whom the land is leased. In such a case it may be assumed that both parties are advantaged by the arrangement, by getting a better proportion of land to the other factors. Thus mobility is gained by two farm operators instead of by but one. The superior degree to which mobility is afforded by this method is evident when its relative elasticity is perceived. Two men are often quite willing in this way to arrange for a more or less temporary transfer of land on the basis of a lease when

neither would be willing for a moment to consider a purchase or sale outright, of the land in question. In 1910, 9.3 per cent of all farms in the United States were operated by "owners renting additional land"; and in the North Central States west of the Mississippi, where this practice is most prevalent, the proportion reached 16.1 per cent. Remembering that every such arrangement affects at least two farms it will be seen that for the country as a whole mobility with reference to the land factor was afforded by this method to nearly one farm in five in 1910 and to nearly one farm in three in the North Central group west of the Mississippi. Indeed the use of this method of securing mobility is even more widespread than is indicated by the census figures. For in some parts of the country it is very common for single fields to be let out for cropping or for pasturage for a single season; or for a field of hay to be let out for harvesting on shares.<sup>1</sup>

Undoubtedly not all cases of renting additional land represent a better proportioning of the land factor to the other factors—either for the lessor or for the lessee. But at least the method presents the opportunity for securing such a result and this is doubtless one of the objects aimed at.<sup>2</sup>

5. *Changing to a more intensive or to a less intensive type of farming.*—A shift in the proportion of the land factor to the other factors of production that is secured through a change to a more intensive or to a less intensive type of farming, on a farm of given size, represents mobility on the part of the other factors rather than on that of land. For it is the former factors that are varied in quantity relative to the land and not the latter to them. But there must be at least sufficient mobility attaching to the land to permit of its being shifted to the new use. Land is by no means completely mobile in this respect. Yet it is frequently the lack of mobility on the part of these other factors that prevents a shift to a new type of farming rather than a lack of mobility attaching to the land. This fact can be expressed in another way by saying

<sup>1</sup> The instructions to census enumerators direct them to count only land that is under lease on April 15 of the census year.

<sup>2</sup> Of course the man who rents the additional land *may* rent the whole of another farm.

that there is many a farm that *might* better be devoted to a different type of farming, involving a changed quantitative relation between the land factor and some, at least, of the other factors, provided the manager had the knowledge and skill successfully to carry on the new branch of farming and provided the capital and labor could be shifted without material loss.

### III. THE MOBILITY OF LABOR AS A FACTOR IN FARM ORGANIZATION

The chief ways in which mobility with regard to the labor factor in farm organization is secured are the following: (1) simple hiring and discharging of laborers; (2) variation in the length of working hours and in the intensity of exertion on the part of the workers on the farm; (3) mutual exchange of labor among neighboring farmers; (4) the shifting of labor to a different branch of farming; (5) physical removal of farm labor from one section of the country to another; (6) immigration and emigration of farm laborers.

This classification is not above criticism in that all these methods are not altogether mutually exclusive. But it will perhaps serve the present purpose. The degree of mobility in the labor factor secured through the hiring and discharge of laborers is far less complete in fact than is likely to appear *a priori*. For not only is there often much difficulty in hiring in the first place but freedom to discharge is frequently limited by inability to rehire at will after discharge, on account of the condition of the labor market, of remoteness from the available labor supply, of the desire of the laborers for continuous employment, of the degree of special kind of skill required, and on account of other circumstances. Though the opportunity to vary the amount of labor in proportion to the other factors of production is, on the whole, much more restricted with regard to the labor of the farm family than with regard to hired labor, since the labor supply of the farm family remains about the same irrespective of the varying demand for labor, the farmer and his family are able at times materially to expand the amount of labor which they put into the farm work, by much longer hours and by increased intensity in periods of unusual stress. Something of the same result may be achieved with respect to the hired labor;



but for reasons that are evident the opportunity is more restricted than with respect to the home labor. The occasional labor of the women of the farm family in connection with the outside farm work still represents an important element of mobility in the farm labor supply in some sections. Exchange of labor between farmers is less important than formerly and seems to call for no special consideration. The shifting of labor to a different branch of farming, which usually involves a different proportioning of the factors of production, is conditioned by the degree of specialization required and by the intelligence of the laborers. In former times there would appear to have been a larger degree of mobility in the shifting of the labor factor to a new farm employment, because of the crude methods of performing the work. Today, when many branches of farming have become rather specialized, the labor must be performed with particular judgment and intelligence. In the handling of live stock, for example, either for breeding, for feeding, or for dairy purposes, care and discrimination and technical knowledge have today become prime factors. A quite similar situation obtains in many other branches of farm employment. Much depends upon the intelligence of the laborers. For this reason there is usually much greater facility in transferring the farmer's own labor to a new branch of farming than in transferring hired labor. Within the limits already indicated, hired labor, if not readily transferrable to the new branch of farming, may be discharged and new labor hired.

In one respect there is very great mobility, in this country, relative to the shifting of hired labor from one branch of farming to another or from one task to another in farming. For status with reference to farm tasks has never developed to any considerable extent in this country. No particular group of farm laborers has come to feel that they have a special claim upon a certain kind of farm work, to the exclusion of those who have not been apprenticed to this particular kind of work. Nor are these laborers likely to feel that they should not be asked to perform some other kind of work than that to which they have ordinarily been accustomed. Nor do labor organizations intervene, as they do in the city industries, to prevent the free shifting of laborers from one branch of farm

employment to another. In these respects the farm employer in this country enjoys a free hand with reference to the disposal of his hired labor.

In a country such as our own the mobility of labor with respect to physical removal from one section of the country to another is, for various reasons, comparatively high. Of the marked advantage of this fact in our farm organization we have a striking illustration in the sweep of the wheat harvesters northward in the wake of the ripening grain—an illustration that is annually repeated and that has its fainter parallel in similar migration of hired labor for other seasonal tasks on the farm. Foreign immigration and emigration relate themselves, in the main, to other industries than agriculture in this country, and represent not a seasonal flow and ebb but a movement that normally waxes with the wave of industrial prosperity and wanes with industrial depression. In recent years, however, and especially during the past year, there has been a very important seasonal movement of Mexican labor across the border into the farming regions of our Southwest, with a reflux at the close of the busy season.<sup>1</sup> Similarly there has been, for many years, in East Prussia, and in other parts of Germany, an influx of Poles and of other Russian and Austrian elements at the beginning of the busy season in agriculture, and a reflux at its close. Likewise Belgians and Italians, as well as Poles from Galicia, find seasonal employment in the agricultural districts of France, and in some parts of England and Scotland Irish labor still enables the farmer to meet special labor needs.

As compared with earlier times the farmer in the United States enjoys less mobility with respect to the utilization of hired labor and really requires more. For while the requirements as to efficiency are such today that the farmer is no longer able to simply draw upon the general supply of unskilled labor with the privilege of discharge whenever desired, the introduction of machinery on the farm and the transfer of the domestic manufacturing industries to the factory have shortened the period over which employed labor

<sup>1</sup> Estimated at 100,000 for Texas and an equal number for California, Arizona and New Mexico taken together, since Christmas 1919: *Literary Digest*, July 17, 1920, p. 53.

is necessary and have eliminated much employment, on the farm, that formerly occupied the hired laborers during the winter season. So unresponsive to his needs has the American farmer found the labor supply that he has been forced to reorganize his business in various ways so as to economize in the use of labor. As a result the scarcity of labor on the farm seems less than is really the case when measured by the standards of an ideal combination of the factors of production. The farmer is urged, and doubtless rightly, to modify the character of his farm organization in a very different way so as to provide employment the year around in order to command labor satisfactory in quality and sufficient in amount. This represents, of course, the adjustment of the other factors of production to the labor factor and not the adjustment of the latter to the former, and is illustrative of the difficulty of securing mobility with respect to labor on the farm in this country.

#### IV. THE MOBILITY OF CAPITAL AS A FACTOR IN FARM ORGANIZATION

Of all the factors of production, in agriculture, capital is the most varied in the degree of mobility that attaches to it in its various forms. The "law of proportions," too, is peculiarly important with reference to capital in agriculture. In the case of the other three factors of production this law applies mainly with reference to their combination with each other and with capital. But in the case of capital there is, in addition, the intricate and important proportional relation of the different forms of capital to each other to be considered. So important is this phase of the law of proportions that some authorities in the field of the economics of agriculture have discussed the law almost solely with regard to the proportion of the different forms of capital to each other.<sup>1</sup> Their mobility and the methods by which this mobility is realized in actual farm practice, depend upon circumstances which are, on the whole, readily apparent. They are, in fact, with one exception, the same as those which have been seen to apply in the case of land and labor. Mobility of capital has also received more adequate

<sup>1</sup> Carver, *Principles of Rural Economics*, pp. 216-22.

treatment at the hands of economists, and this phase of the subject can thus be treated more summarily. The methods employed include: (1) physical transfer from place to place; (2) changed use; (3) withdrawal or replacement, in varying degree, of worn out capital; (4) purchase or sale; (5) hiring or leasing; (6) co-operative ownership and use.

Capacity for "physical transfer" is important, as already pointed out, in so far as it permits a change to another farm of different size or to a farm adapted to a branch of agriculture involving a changed quantitative relation of the factors of production to each other. That there is very great difference in this respect in the different forms of capital on the farm is so readily apparent as to call for neither discussion nor illustration in this paper. Attention may be called, however, to the fact that the difference in the degree of mobility, so far as physical transfer is concerned, attaching to different forms of farm capital facilitates the employment of the tenancy system, with its corresponding modification in farm organization and practice. Because the ownership of the forms of capital that are not capable of being removed ordinarily vests in the landlord while those forms that are capable of physical removal are, in general, the property of the tenant, the latter can own a considerable part of the capital he uses and still be in a much better position to shift from one farm to another than is the landlord. This advantage that the latter enjoys undoubtedly has its drawbacks but it is nevertheless a real advantage—especially from the economic point of view. It is of some interest, too, though chiefly historic, that in a slave system of agriculture the slave represents a form of capital having a high degree of mobility in the sense of capacity for physical removal. The slave owner in the South, therefore, readily shifted to new lands when constant cultivation to cotton and tobacco had led to infertility of soil in the areas previously occupied.

"Changed use" is chiefly important because the transfer of the farm equipment to a different type of farming often involves an increase or decrease in the proportion of capital to the other factors. Such changes are, of course, limited by the degree of specialization of use attaching to the different forms of farm capital. To return

to the illustration of slave labor, the slave represented an immobile form of capital from this point of view in that, on account of a low degree of intelligence, he could not be readily or effectively transferred to a new use nor to a varied or complicated use. The slave owner was therefore under the necessity, in large measure, of continuing the same type of agriculture and the same general type of farm organization and practice when he shifted to the new region. For the same reason he was unable to substitute, on the old estate, a system of permanent agriculture for the system that he had been following and that had necessitated, or rendered advisable, removal to the new region. Illustrations of the way in which, for the ordinary forms of farm capital, mobility is affected by the degree of specialization of use will readily occur to the mind.

Opportunity for variation in the proportion between capital and the other factors of production, through withdrawal or replacement of capital, comes, of course, at the time when a particular capital instrument has arrived at the "worn out" stage. Primarily, we deal here with the degree of durability of the forms of capital; secondarily, we deal also with the degree of specialization of use because upon this depends, very often, the time within which a capital instrument yields up its full contribution to production and arrives at the normal replacement or withdrawal stage.<sup>1</sup> It is evident that the nearer a form of farm capital approaches the circulating type the more frequently the opportunity comes to decrease or to increase these forms of capital in proportion to the other factors, or to exclude their use entirely. If, for example, too much space has been devoted to orchard fruits it may not be possible, without too great sacrifice, to clear out a portion of the trees at once. Time must elapse to permit of the orchard's paying for itself, in part, at least, and naturally to decay in doing so, before partial removal can be arranged profitably. On the other hand a portion of an excessive area planted to strawberries might be rooted out without much loss at almost any time; or might, in a short time, be suffered to go by default by mere decision not to

<sup>1</sup> It is obvious that other things being equal, a highly specialized instrument will not ordinarily have as continuous use as one less highly specialized and will thus have a longer normal durability.

reset. Or if a farm should happen to become overstocked with hogs, the number of hogs on the farm could soon be reduced by the decision not to replace when in the course of a few months the hogs now on the farm shall have gone to market.

The quantitative relation of many forms of farm capital to each other and to the other factors of production may often be readily varied through "purchase or sale." The opportunity for this is at the maximum in respect to such forms of farm capital as work animals, live stock in general, and feed, and at the minimum in the case of farm structures, orchard improvements, drainage, and the like—with farm machinery and implements occupying a middle ground. Here again the opposite circumstances in which different farm managers find themselves at a given time facilitate purchase and sale, back and forth, and thus increase the mobility that each farmer may enjoy with respect to certain forms of farm capital. An interesting illustration of the working of this plan of purchase and sale is afforded by the tendency in recent years for what were at one time different phases of the same branch of farming to be sub-divided into several separate though mutually dependent branches. One such case is represented by the separation of the fatted live-stock industry into a grain-growing phase, a stocker phase, and a feeder phase. Here the grain grower sells to both stocker and feeder, the stocker sells to the feeder, and the feeder sells on the fat stock market. In this way the length of the "turn over" is shortened for each of the three parties. Much sooner than otherwise would be the case, each realizes on his investment, receives his capital back in hand in the fluid form, and may then speedily shift the investment in the direction either of an increase or of a decrease or withdraw it entirely. There are other reasons why such an arrangement has been found desirable; but undoubtedly the increased mobility in the control of the capital that results is one of the important advantages.

In many cases the farmer will not attempt to provide himself with every necessary implement, machine, or instrument, but will depend on "hiring or leasing" such equipment, or will perhaps have the work done by contract by those who own such equipment. When, as is not infrequently the case, the machines or implements

that certain farmers lease or hire are the property of other farmers there results double contribution to quantitative mobility of the factors of production. For the owners also are thus offered the opportunity temporarily to vary the proportion of the factors of production on their own farms, by transferring a part of their equipment, and often a part of their labor as well, to a use outside their own premises. The latter are also able to secure the full productive capacity of highly specialized forms of capital within a shorter period of time and to have the funds invested in them in hand the sooner for free disposal.

“Co-operative ownership and use” of farm capital represents a somewhat modified method of achieving much the same results as are achieved by hiring or leasing. Though there are offsetting disadvantages, the drawbacks both of over-investment and of complete non-ownership are avoided in this way; and fuller utilization and more rapid turnover are again secured.

It should be noted, finally, that mobility of farm capital in general is less easily realized than would seem at first blush to be possible. Usually both mobile and immobile forms of capital are intimately involved with each other in the farm organization. As a consequence it is often not possible to withdraw or to vary the mobile forms of capital when they seem to be freely disposable for withdrawal or replacement, since it is frequently impossible at such times to withdraw the immobile forms and yet these latter cannot be made to continue productive without the aid of the former. The former must therefore often be replaced when it might otherwise be desirable to withdraw them. To a considerable extent, then, the freedom of varying the farm organization through the apparent mobility of some of the forms of capital is limited; and to this extent the farm manager is, for a time, helpless with reference to a change in the proportional relation of the factors of production that might otherwise prove desirable.

#### V. THE MOBILITY OF MANAGEMENT AS A FACTOR IN AGRICULTURAL PRODUCTION

Like Sir Joshua Reynolds' paints, the other three factors of production must be “mixed with brains”—that is, with *management*. So far as the individual farm enterprise is concerned there

is little danger of an over-proportion of brains, that is, of management, however superior that management may be. But good management being in agriculture, as it is in other branches of industry in general, the scarcest factor of production, it is both socially better and individually more profitable that good management shall not be wasted by over-proportioning it to the other factors of production in a given farm enterprise. In general the best managers should be permitted to increase their command of the other factors of production up to the point where their management is so diluted that the results are, on the whole, no better than if the control of the other factors were left to those of the next inferior grade; and competition among managers tends to bring about this result, so far as the agencies through which competition operates are effective in overcoming the resistance to such a consummation. Constant changes, too, in the relative efficiency of farm managers afford a basis for a constant shift in the control of the factors of agricultural production. These and other circumstances not only make important a consideration of the conditions which determine the mobility of the managing factor but also, because of the active and vital relation of the managing factor to the whole farm enterprise, reflect a new interest upon the means by which mobility with respect to the other factors of production is secured.

It is perhaps well to consider at this point a feature in the situation that applies also to other factors of production but that applies in special degree to management—namely the transmutation of the quantitative and the qualitative aspects of the factors of production. It is clear that the real proportional relation of a factor to the other factors originally will depend very much upon the grade or quality of that particular factor relative to the grade or quality of the other factors as well as upon the strictly quantitative relation. Similarly, the real proportional relation between the factors of production may be materially altered by a change in the quality of one factor relative to that of the other factors even though the previous strictly quantitative relation remains unchanged. It is, of course, theoretically conceivable that in case of a qualitative change in the factors of production



the quality or grade of each of the four factors might be changed either for the better or for the worse in exactly the same proportion and that a marked qualitative change might thus be effected without disturbing in the slightest degree either the qualitative or the quantitative relation between the four factors.<sup>1</sup> Indeed it is a well recognized principle, both in business practice and in economic theory, that factors of production of somewhat similar grade or quality tend to be combined in a business enterprise and that a qualitative change, either for the better or for the worse, in one factor tends, in greater or less degree, to extend to the other factors. Thus the superior farm manager, if not already in possession of a superior farm, which he cultivates with a superior grade of labor, and with superior machinery, will usually be found working toward such a consummation; and it is a common observation in business circles that it does not pay to supply highly skilled and expensive labor with inferior implements or machinery. Yet this undoubted tendency toward an equivalence of quality for all the factors may at any given time be very imperfectly realized; and it is by no means uncommon for the manager to be under the necessity of offsetting the inferiority of one or more of the factors, whose improvement cannot be brought about at once, by utilizing in the other factor or factors an especially superior grade or quality.

While this transmutation of the quantitative and the qualitative aspects of the factors of production tends to confuse the proportional relation of the factors to each other, this confusion is minimized when we remember that in an economic system organized on a pecuniary basis and operating with a view to the largest net profits, all the factors, as well as the result itself, come more and more to be measured and expressed in terms of value and not in terms of physical quantity. Thus a superior quality of instrument may be considered to embody a larger quantity of capital, measured in pecuniary terms, than an inferior one. This is something more than a convenience. It is, in fact, a legitimate and highly useful procedure; for the change is thus expressed in the terms

<sup>1</sup> This statement is inadmissible if we define land strictly as a natural agent, for in that case any improvement in the land through human agency would be credited to the capital element.

according to which the whole process, together with the results, is judged. Lastly, it should be noted that the advantage of mobility is in no wise diminished by this dual aspect of the factors.

Mobility of the management factor in agriculture may be realized, (1) by education; (2) by the association of different individuals, and of a varying number of individuals, in the management of a farm or of a given area of land; (3) by increasing or decreasing the intensity or carefulness of the management; (4) by transfer of business ability between agriculture and other lines of business; and (5) by combining other occupations with agriculture.

1. *Mobility in management as affected by education.*—The term education is used here in a broad sense as including all of the agencies that lead to improvement of the management factor. The man who finds his farm too large for successful management under present conditions may possibly so improve his managerial skill through one or more of these educative agencies as subsequently to be able to handle it successfully. Another man who finds his farm too small to work successfully with his present methods in like manner may possibly so improve his skill as a manager that he can subsequently work the farm at a profit—if not along the line previously followed, then along the line of some other farm pursuit to which the size of the farm and its other features may be better adapted, and to which use he can transfer it because of his increased knowledge and ability.

The superlative importance of improving the managing factor, with the aim of securing more efficient business organization—whether in agriculture or in other lines of business—lies, of course, in the fact that the managing factor is the *active* factor in the organization. When the management factor is improved an active human force is given additional activity and intelligence and as a result a better adjustment of all the factors to each other, through quick appreciation of the opportunities that are offered along this line, may reasonably be expected. For nothing is farther from the truth than that a certain ideal farm organization, involving, among other features, a particular proportioning of the factors of production to each other, can be worked out once for all and then maintained indefinitely without change. It is also especially true

in agriculture that the later stage of operation cannot entirely displace the earlier stage of organization. The regular operation of a farm enterprise cannot be reduced to a mere routine execution of an organization previously planned. Circumstances are constantly arising that call for a modification of the plan of organization. These circumstances arise partly through change in the relative expense of the factors of production, partly through a change in their relative efficiency, partly through change in the price of different farm products or in the profitableness of different branches of farming, and partly through the exigencies that result from uncertain weather and climatic conditions. Even apart from these circumstances routine operation involves variation in proportionality in detail as the work progresses from one seasonal stage to the other. In farming, then, organization and operation tend to an unusual degree to merge. Consequently the successful farm manager, like the successful general, must be able to change his tactics, and even his strategy, as conditions require. In neither case will a stereotyped execution of a previously developed plan suffice.

This resourcefulness and flexibility in the management is strongly promoted by education of the right sort—whether it be of the schools or whatever be its source. Training as to methods is secondary. If we can but train a man to think and to attack his problems intelligently and with all his powers, we may trust him to find the proper methods for the solution of his particular problems. Such a training will enable the farm manager to distinguish between the fundamental problems of his business and the superficial or incidental features. It will therefore enable him to concentrate all his powers, for the time being, upon the former and to leave the latter to subordinates. When farm managers shall have had an education of this sort we may look for unprecedented progress in the business of agriculture, because only then will they be adequately prepared to work out their problems through observation, through experiment, and through intelligent utilization of all the aid that science can afford. When this condition shall have been realized, too, the aim to achieve a more nearly ideal farm organization will no longer continue to be so materially limited by deficiency in the managing factor.

2. *Associated management.*—In other lines of business than agriculture, the number, as well as the business capacity, of the persons involved in the ownership and management of an enterprise is constantly changing by means of the flexibility secured through the method of associated management. The management factor in these enterprises is not only changing numerically because of the varying number of persons associated directly or indirectly in the management but the real business ability available in such enterprises varies as the personnel of the joint participators in the management varies. The substitution of one person of high managing ability for another of mediocre ability leaves the number of persons associated in the management the same but may vastly increase the amount of managing ability in the enterprise. By an inverse process of substitution the amount of managing ability in an enterprise may be greatly diminished while the number of persons associated in the management remains the same.

Though the method of associated management is of relatively small importance in agriculture—especially in this country, where the individual farm manager is overwhelmingly the prevailing type, nevertheless it is obviously possible for agriculture to make use of any of the forms that are ordinarily utilized in other lines of business: the partnership, the corporation, and the co-operative form. But vastly more important than any of these, in agriculture, is the method of share tenancy—a method almost altogether peculiar to agriculture and already in vogue in this country to a very considerable extent. Lastly, the employment of a hired manager by the individual farm owner means, ordinarily, not the entire displacement of the latter but rather an association of the two in the management.

a) *The partnership in agriculture.*—The ordinary formal partnership is not an especially elastic or mobile form of business organization. Its limitations in this respect are well known. A unified and consistent policy is often hard to realize, a reversion from partnership to individual entrepreneurship, or an increase or decrease in the number of partners, or the substitution of one person for another in the partnership is in many cases not an easy matter to accomplish, and when the death of a partner terminates

the partnership relation it is often difficult to effect a reorganization. Yet important advantages may often be realized in agriculture by this form of business organization. Where the amount of land in a farm is too large for individual management or for the capital or labor that can be furnished by an individual, a partnership makes it possible to correct, in a measure, these quantitative deficiencies in the factors other than land. Again, the management may be differentiated in a partnership and each partner may take charge of the direction of a part of the enterprise—for which part he may either be naturally better qualified or for which he may the more readily fit himself through being able to give his attention specifically to that particular part of the enterprise. In such a case there can be and usually is co-operation in the general oversight and direction of the business as a whole. Again, partnership between father and sons may secure “continuity of policy” and provide for “gradual transfer of the management from parental hands” without loss while the sons are gaining experience. Under favorable circumstances, then, this form of organization adds flexibility and resourcefulness to the management.<sup>1</sup>

b) *The corporation in agriculture.*—The corporation form of business organization represents the most successful method of achieving elasticity or mobility in business management. The general adaptability of the corporation is proved by its increasingly wide utilization in business in general; and of this general adaptability the element of elasticity or mobility with respect to the management factor is an especially important phase or feature. It is sufficient to note here that the corporation form of business organization makes available, in an intermittent way, the highly skilled services of the directorate who determine the general organization of the enterprise and lay down the broad lines of policy for its conduct, leaving to the administrative staff the carrying out of the plans and the actual conduct of the business. This method of organization thus renders available for an enterprise, as occasion may require, the managerial ability of men of great business skill whose participation could not be secured at all if it were necessary for them regularly to give their whole time to

<sup>1</sup> Orr, John, *Agriculture in Oxfordshire*, Oxford, 1916, pp. 54 ff., 58.

the enterprise in question. Since the executive and administrative staffs devote themselves regularly and continuously to the interests of the enterprise the quantitative relation of the management factor to the other factors does not undergo material modification through their direct agency though they may often bring about such a result indirectly by occasionally commanding the services of outside experts. The element of mobility, then, in the management attaches rather to the directorate and to the stockholders in general. The personnel and ability of these two groups are likely to change a good deal from time to time as special circumstances demand great ability and assure correspondingly great rewards or as routine conditions vest the controlling ownership and management in men of moderate ability, on terms that bring proportionately moderate rewards. There is also variation from time to time in the amount of attention devoted by the directorate to the business problems of a corporation. There is, indeed, more or less regularity with regard to the meetings of the board of directors. But this is not at all inconsistent with the devoting of a greatly varied amount of attention to the enterprise at different times; and special meetings of the directorate are often called, as special problems arise. Conversely, these same men are thus enabled to vary the amount of attention which they devote to other enterprises with which they are connected.

It is thus clear that, in a corporation, the amount of brains mixed with the other factors of production is constantly varying, and that the corporation form of business organization is admirably adapted to admit of mobility in the managing factor. The use of the corporation in agriculture, then, might make possible some measure of these various advantages. But the fact that agriculture is, in general, a very decentralized and relatively small-scale industry makes it difficult to use the corporation form of business organization in that field. It is not improbable that the apparent inadaptability of agriculture to corporate organization may ultimately prove to be materially less marked than has really been supposed by many authorities. Yet though the use of the corporate form of organization is gradually becoming more common in agriculture there are as a matter of fact very few cases

where standard branches of that occupation are being carried on under that form—its use being largely confined to such branches as the production of cane and beets for sugar, the production of rice, copra, rubber, coffee, citrus fruits, etc, and to such quasi-agricultural activities as the importation of pure-bred live stock and the preliminary exploitation and settlement of areas of land that are just being brought into cultivation. In some cases corporations have been organized for the purpose, not of directly operating farms but of handling in a broad way the management of a number of farms that are held. Sometimes a manager is employed to superintend the management in a more special way—the individual farms being rented on a share tenancy basis and operated directly by tenants in the ordinary way but with the advice and under the general direction of the hired manager. This form of organization is followed on a number of the large holdings in the “Delta District” of California where the land is intensively cultivated to the growing of vegetables. A good deal has been heard recently of “multiple farming” in the British Isles—especially in Lincolnshire and in some other of the English counties. Here “A commercial company appoints a skilled manager and runs as one concern a number of separate farms, on each of which there is now just a foreman who was once an independent farmer.”<sup>1</sup> In the same general class come the beet sugar corporations of Germany, some of the large Austrian estates, and the syndicate farms in eastern France. An interesting recent development of corporation farming in our own country has taken place in the fruit-growing districts of Sussex County, Delaware, where “large farms are being bought and managed by corporations or syndicates interested in scientific apple growing.”<sup>2</sup>

<sup>1</sup> *Journal of the Board of Agriculture* (London), Dec. 1918, p. 1072.

<sup>2</sup> “Mental Defect in a Rural County. A Medico-Psychological & Social Study of Mentally Defective Children in Sussex County, Delaware” *U. S. Dept. of Labor, Children's Bureau, Bureau Publication No. 48* (1919), p. 12.

See also in general, in this connection, *Report of the Commission on Land Colonization & Rural Credits of the State of California*, Nov. 29, 1916, pp. 104-6; Hall, A. D., *Agriculture after the War*, London (1916) pp. 39-52; *Economic Journal*, XXVII (1917), p. 392; *Report on Wages and Conditions of Employment in Agriculture* (England and Wales), I (1919), p. 9; Orr, *Agriculture in Oxfordshire*, p. 137 ff.

Some of these concerns undertake to lend capital on favorable terms to their tenants or otherwise promote good methods of farming. It would appear that this plan of business organization and operation in general in farming assures a comparatively high degree of mobility both in respect to the management factor and in respect to the other factors. Under such a plan there would appear to be relatively great facility for shifting the combination of factors. If a reorganization of the farms should prove desirable or if a changed proportioning of the different factors of production to each other should promise to result in a nearer approach to an ideal combination, such a system apparently would lend itself, in a relatively high degree, to the modifications desired. That these various forms of corporate organization and management are likely to be of restricted application in agriculture is perhaps fortunate from the point of view of political democracy and equality, as they would appear to threaten, if in general vogue, the economic and political independence of the agricultural class to an extent not approached under the present system of tenancy under individual landlords and scarcely approximated even in the concentrated city industries.

c) *Co-operation*.—Co-operation among farm operators with reference to management has the effect of increasing the effectiveness of the managerial ability of the individual co-operating members. Moreover, not a few men have visions of efficiency that they are unable by their own individual powers to materialize into successful practice. Co-operation with their fellows often enables such persons to realize at least some of these ideals of efficiency, to the advantage of all in the group. The ability of the best managers of the group is thus put in a measure at the disposal of the managers with less ability so that the latter are in fact thus able at times to mix a larger portion of brains with the other factors of production. Through co-operation, too, farm operators are able to command expert advice and service to an extent not possible on an individual basis—as, for example, through the county bureau or farm bureau method, or through the employment of expert salesmen in the disposal of their products on the market.



In realizing these advantages it is not necessary to suppose that the co-operation should be of the formal and complete type. There is, for example, much informal and partial co-operation among agriculturists in this country. Farmers associate themselves temporarily for the more adequate realization of their aims along certain lines while with respect to other matters they continue to act wholly upon an individual basis. This condition of affairs undoubtedly makes for a greater degree of mobility with respect to the management factor. For pure, or complete, co-operation, just as any system practiced or followed in a hard-and-fast way, necessarily involves a good deal of inelasticity—an inability to vary the management factor in its relation to the other factors and with reference to the enterprise as a whole. A good illustration of the inelasticity of co-operation when carried to too great a length is afforded by the co-operative farming of the common lands on the manorial estates of feudal times.

*d) Share tenancy.*—In cash tenancy the tenant simply replaces the owner as manager—barring a few general stipulations as to the broad lines of policy. But in share tenancy, which represented the system in operation on approximately one-fourth of all the farms in the United States in 1910, the landlord retains a considerable and real if minor share in the management. To a certain extent the management factor in its quantitative relation to the other factors is thus increased. In this arrangement it is the landlord who affords the mobile element so far as the management factor is concerned, as he may greatly vary the amount of attention which he gives to the farm enterprise from time to time while the tenant ordinarily devotes his whole time to it. The educative aspects of share tenancy, as they affect the tenant operator, are of course worthy of notice, in that he is being prepared in a managerial way for larger things at the same time that a growing family and increasing control over capital are pointing in the same direction. By virtue of the easily dissolved relation to the landlord, and to the farm which he has been occupying, the tenant passes readily, with his mobile labor and capital, to another farm or to the pursuit of another branch of farming, perhaps to arrive finally at the status of owner. Cash tenancy

shares, in considerable measure, in these latter features of elasticity and mobility.

3. *Mobility through increasing or decreasing the intensity or carefulness of the management.*—Other things being equal, efficiency of management depends, of course, upon the intensity with which the farm manager devotes himself to his task, and this may vary greatly from time to time. Failing health and advancing age make for a diminution of the managing factor in the farm enterprise; and comfortable financial position may lead to a similar result. In such a case the amount of labor and capital utilized is likely also to diminish so that the land is less intensively used. Almost always such a change in the organization of the farm means a decline in the profitableness of the enterprise. Conversely, the profitableness of a farm enterprise may be increased—often largely so—by increased attention and application to the management, without necessarily increasing the other factors or even changing their proportionate relation to each other and without an increase in the ability of the farm manager. Many farm managers, like other managers, are often, through lack of energy, very far from bringing their full powers to bear upon the management of the enterprise in hand and are thus very far from achieving maximum results. Increased intensity in management does not necessarily mean longer hours on the farm. Hours are already too long on the farm, but this is due rather to excess of time devoted to manual toil than to excess of time devoted to management. If, as often will be the case, greater attention to management has the result of reducing the amount of manual toil required, this, in turn, is likely to react favorably upon the quality of the management. For probably nothing so stands in the way of more efficient management in farming as the fatigue and distraction of long hours of toil.

Marriage and family very frequently increase a man's sense of responsibility and thus may lead to closer attention to business; and an enlarged sense of duty to the community, as in time of war, an extending range of wants on the part of the manager and his family, higher prices for farm products—all may afford a spur to his energy. Increased prosperity in agriculture, relative to

other pursuits, tends, too, to draw into agriculture the type of manager who is willing to give strenuous attention to business when profits are large. With waning prosperity in agriculture this type is likely to return to other lines of business. Yet there is perhaps more of immobility than might at first be supposed in respect to increase or decrease in the intensity with which farm managers look after the management of their affairs. Men do not readily change their business habits and conditions that would seem calculated to affect them strongly in this respect often leave them comparatively unmoved.

4. *Transfer of business ability between agriculture and other lines of business.*—Attention has just been called to the fact that relatively higher prices for agricultural products tend toward the displacement, in that pursuit, of those who are indifferent to price change, by the more commercially minded, while depressed conditions in agriculture have the opposite effect. This results in an increase or decrease in the managerial element, as the case may be, in general and with respect to individual farms that change hands. There is no greater mistake than the view that business ability cannot be carried over from one line of business to another; and this influx of business ability into farming from other lines of business affords one of the chief hopes for improved business methods in farming. In times past, the transfer has usually been in the other direction. So soon as a man began to develop a good measure of business ability through his experience in business management in agriculture a more favorable opportunity presented itself elsewhere for the exercise of that ability and he was consequently lost to agriculture. Much has been said of the drain of capital and labor from agriculture; and truly the losses to agriculture have been great from these sources. But it is probable that the loss to agriculture due to this constant drain of business ability away from the farm as men gained in business efficiency there has been greater than that due to the loss of labor and of capital together. Changing conditions, however, warrant the view that henceforth agriculture will not only be able, to an increased extent, to retain native business ability developed in that pursuit but will more and more win over ability developed in other

lines of business—to the material increase of the managing factor in agriculture. This will not necessarily mean a changed proportion of capital and labor to managing ability on the individual farm but it is almost certain to mean an increased proportion in the other three factors to land—that is, increased intensiveness in the use of the land. The more temporary transfer of business ability between agriculture and other pursuits is, however, likely to introduce a larger measure of elasticity into the farm organization than can be expected from a permanent transfer.

5. *Mobility in the management factor in agriculture through combining, occasionally or regularly, other occupations with farming.*—For obvious reasons this method is to be commended only in a restricted degree, though it is a practice to which there is frequent resort. It is not strictly correct, either, to consider this method of gaining mobility as applicable to management alone. For quite frequently the adding of some other occupation to the farming operations affords a means of utilizing labor and capital that are employed at other times in strictly agricultural operations. Even the land may be made to serve other than strictly agricultural purposes in this way. But because of the central place that the managing factor ordinarily holds, with respect to both the farm and the other employment, there appears to be justification for considering this method particularly with reference to management.

In the days before occupational division of labor had attained its present extended development the farm family occupied itself with a number of other activities in addition to the strictly farming operations. Though it was, on the whole, a great gain when these other activities were taken over by the factory or transferred to other interests, yet the resulting specialization on the part of the farmer brought something of inelasticity or immobility into the organization of the farm enterprise. For, as is universally recognized, on account of seasonal and climatic conditions in agriculture it is very difficult—in many cases impossible—so to arrange the farm work as fully and continuously to utilize the factors of production throughout the year. When these other activities were a part of the general work on the farm, the farm manager could

divert the labor of himself and of his family, and of his hired workers as well, to these other activities during the slack season or when weather conditions prevented prosecution of the regular farm work. To a certain extent, too, the other factors than labor could be directed to some use apart from that connected with the regular farm operations.

These accessory employments available on the farm, in earlier days, are too well known and too varied to admit of being catalogued here. It is the part that they played in respect to the farm organization that needs to be emphasized. It is most interesting in this connection to read in a statement made nearly three-quarters of a century ago relative to the potteries in Muskingum County, Ohio, that they were mostly owned by small farmers, to whom they were "a substitute for more land."<sup>1</sup> Some of these varied activities that are apart from the strictly farm work the farmer still retains on the farm and he occupies himself and, in a measure, his business organization in general with these at odd times. In other cases the farmer still goes, with more or less of his general equipment, outside the local activities of the farm and engages, more or less periodically, more or less temporarily, in other activities. Many a farmer still occupies himself with lumbering and with teaming, at times, and an occasional farmer, at least becomes for a part of the season, a wool- or live-stock buyer, either as the representative of some regular dealer or on his own responsibility. The suggestion is occasionally made that even today there may be profitably combined with agriculture simple forms of manufacturing to which attention may be directed during the slack period for the farm work. Some even go so far as to declare that occupational division of labor has developed to altogether too great an extent and frankly urge a reunion of agriculture and manufactures of a certain type. Many of the proposals for the revival or encouragement of domestic manufactures or handicrafts on the farm relate to the employment of women in the home, with the object of providing them with a source of revenue or of adding to their interest in farm life and thus of insuring their continued residence in the rural districts. But other work supplemental or accessory

<sup>1</sup> *Third Ann. Rep. Bd. of Agriculture of the State of Ohio*, (Jan. 1849), pp. 84-85.

to the regular farm work has been found or has been urged for the men workers. Indeed where such work is actually carried on it sometimes represents a survival of the early association of manufactures with agriculture. And it is believed by some that the decentralization of power through the development of inexpensive gas and electric motors and through economical transmission and storage facilities favors the return, in these ways, to a combination of agricultural and industrial operations.

In all this turning aside to other than strictly farm operations there is a great deal of danger that the farmer will become too much occupied with these outside matters to the serious neglect of his own proper work. But there can be little doubt that these side-lines do make possible a considerable measure of elasticity in the proportional relation of the farmer's factors of production. Just where the golden mean may lie between over-specialization in agriculture, with resulting immobility of the factors of production and failure to secure their economical utilization, and the undue and distracting combination of supplementary activities with agriculture in the effort to correct the disadvantages specified, is an important question but one with which we are not now primarily concerned. The object has been to point out how mobility with regard to the quantitative relation of the factors of production to each other in agriculture has as a matter of fact been realized—and still is, in a measure, being realized. Undoubtedly there has been frequent resort to this method for the purpose indicated, even though there may have been little conscious appreciation, in many cases, of the real nature of the adjustment.

#### VI. SUMMARY

In conclusion we may revert to the position stated at the beginning of this discussion: that however important the matter of the theoretically ideal combination of the factors of production in farm organization may be, such a condition cannot, in actual practice, be approximated, much less completely realized, except through a modification of the present organization; and that were the ideal combination approximated, more or less further continuous modification would be required as changing conditions

affected the ideal combination and necessitated a new proportioning of the factors of production. In view of these considerations an analysis of the various methods through which a shift in the quantitative relation of the factors to each other has been actually secured in the past, and of the circumstances that condition the mobility of each of the factors in respect to such a shift is believed to be important. Through such an analysis we may not only hope to gain a clearer understanding of the fundamental principles of farm organization but we may hope to be the better able, starting from the basis of known practices or methods, to work out still better plans for modifying the farm organization so as to secure a nearer approximation to the ideal in both its dynamic and static aspects. This aim appears especially important in agriculture. For the attentive student of business organization in agriculture cannot help being impressed with the view that there is a great deal of loss of productive energy in that line of business because of imperfect or uneconomical utilization of the factors of production. To a very considerable extent this results from characteristics inherent in the business. But this is no good reason for not seeking a remedy.

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